II. *Part of a Letter from Mr.* Anthony van Leeuwenhock, *F. R. S. to Mr.* James Petiver, *F. R. S. Containing ſome Microſcopical Obſervations upon the* Animalcula in Semine *of Young Rams.*

Delft in *Holland*, *Auguſt* 18. 1711.

SIR,

HAving about the time that you call'd upon me, employed my ſelf in Diſſecting the Teſticles of a young Ram, I take the Liberty to communicate to you my Obſervations thereupon. At the latter end of the Month of *June*, I procured two Teſticles of a young Sheep, to which they ſtill gave the name of a Lamb, and I made a ſmall Inciſion in the lower part of each of them, where there was a Protuberant roundneſs, and from whence proceeded the *Vaſa Semen deferentia*: Then I ſqueez'd a little whitiſh Matter out of them, which I immediately placed before a Microſcope; and having very clearly obſerv'd a vaſt number of *Animalcula* living and moving, I was reſolved not to ingroſs the Spectacle to my ſelf alone, but I call'd four ſeveral Perſons to be Eye-witneſſes of the ſame; which I did the rather, becauſe I have been charged by ſome Learned People, but not of our Town, that what I have affirmed upon this matter was not true: And becauſe the *Animalcula* could not be ſeen ſo diſtinctly, by reaſon of the vaſt number and the quick Motion of 'em in the little ſlimy Matter, in which they ſwam among one another, I took a little Rain Water, about the quantity

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of a great Pins head, and mixed it with an equal quantity of the ſaid Matter; whereby it being very much Diluted, I placed it again before the Microſcope, and then we could ſee very clearly the dead Bodies of thoſe *Animalcula* lying in the Liquor.

About 10 or 12 Days after, I got two other Teſticles of a young Sheep, otherwiſe call'd a Ram, but they were ſomething ſmaller than the former; and I proceeded with them as I had done with the reſt, but found that the whitiſh Matter was much more fluid than the former; and that there was floating in it a vaſt number of very clear little Globular Bodies, of which I could not diſcover any of the leaſt Particles to be like thoſe living *Animalcula* above-mention'd. From which Obſervation I thought with my ſelf, that as the unborn Creatures lie in their Mothers Womb, in ſuch a Globular Figure, as is conſiſtent with our Bodies; ſo in like manner, theſe round Bodies or Globules, which I ſaw, were *Animalcula* proceeding from the *Semen Maſculinum*, that were not yet arrived to their compleat Figures.

Eight Days after, I got two more Teſticles of a young Ram, which were ſmaller than the former; which having open'd in the like manner, as I did the other, I found not only no *Animalcula* that appeared to be living, but the tranſparent Globules were not the fourth part ſo big, according as I could gueſs with my Eye, as the above-mention'd.

Upon the 13th of *July*, I again cauſed two Teſticles to be brought me of a ſucking Ram; which, tho' it was a young Ram, they call it a ſucking Lamb, becauſe it had ſuck'd its Dam a little before it was killed. I was inform'd, that this Lamb was about 3 Months and a Fortnight old, and its Teſticles were a little more than half as big as the firſt. Having opened theſe likewiſe, in that part where the *Vaſa Semen deferentia* were thickeſt,

thickeſt, and having taken one of them out, and view'd it with the Microſcope, I judged that thoſe Globules which I obſerv'd therein were ſo ſmall, that 25 of them were not equal to one of the great ones above mention'd.

Upon the 18th of *July*, I made an Experiment of the ſame nature with the former, the Lamb being almoſt as old as the preceding; but I could not diſcover any Globules bigger than the laſt mention'd. nor any thing that appeared to be living.

Upon the 20th of *July*, I repeated my Experiment upon the Teſticles of a young Ram, which was very near as big as the firſt of all; which having open'd in the uſual Place, I ſaw great Numbers of *Animalcula* living: I diſcover'd likewiſe in the fluid Matter, which I had taken out, ſeveral Globules floating, which I imagined likewiſe might be ſome of thoſe imperfect *Animalcula* above-mention'd. All theſe young Rams were killed the Day before their Teſticles were brought to me.

Upon the 25th of *July* at Nine a Clock, they brought me two Teſticles of a young Ram, which they had killed the Day before at Eleven a Clock at Noon: Theſe were bigger than any I had ſeen this Year.

I immediately examined one of them, opening the part before mention'd; and I diſcover'd the *Animalcula* in ſo great a number, and like Clouds moving amongſt one another, that it was no ſmall Pleaſure to me to have ſo many Objects before my Eye: And this I continued to do till the Clock ſtruck 12; and conſequently till the Teſticles had been 25 hours out of the Body of the Ram, and had lain wrapt up in a Paper upon an earthen Diſh, and were expoſed to the Cold of the whole Night. Then I took a ſecond Teſticle, upon which I had as yet made no Remarks, and I bound it up in a Linnen Cloth, and kept it in a warm place, in order to view it the next Day; and I obſerv'd the firſt Teſticle

till

till 5 a Clock in the Afternoon, at which time I ſaw ſome *Animalcula* living; but at 12 a Clock before, I diſcover'd a hundred living *Animalcula* for one that I ſaw at 5 a Clock: for between 12 and 5 a Clock, I had made 25 ſeveral Obſervations, and thoſe almoſt always by making new Inciſions with a Knife into the Teſticles, and by ſqueezing the Matter out of the Inciſion, tho' no bigger than a Pins head.

Now while theſe *Animalcula* were ſwimming in the aforeſaid fluid Matter, I obſerv'd often thro' the Microſcope, that the firſt part of their Bodies had a very bright glance with it; juſt as we ſee in ſmall Fiſhes ſwimming in the Water, when they turn upon their Sides or Bellies, and caſt a glittering brightneſs to the Eye: from which I imagin'd, that the upper part of the little Bodies of the *Animalcula in ſemine Maſculino* of the Rams were flattiſh, and that that brightneſs proceeded from their expoſing thoſe flattiſh Sides to the ſight in ſwimming.

The next Morning at 7 a Clock, I viewed the Matter of the ſecond Teſticle, which I had bound up in a Cloth, with my Microſcope; but I could not perceive any thing that had the leaſt Life in it; and the Teſticle had begun to be corrupted, for an ugly ſmell proceeded from it.

Now ſince we perceive that the *Animalcula* in the Teſticles of a Ram, can live 32 hours after the Ram is dead, we may very well conclude, that the ſaid *Animalcula* in *Semine Maſculino* of a Ram, being admitted into that part of the Womb of the Ewe, which is call'd *Tuba Fallopiana*, will live much longer, that being the place which Nature has provided for them. From whence it may follow, that after the Copulation of the Male and Female, the *Animalcula* may be 2 or 3 Days in coming into that part of the Womb, where they receive their Nouriſhment, and conſequently before the

Female

Female is Impregnated; and the ſame may be applied to other Creatures. Theſe are all the Obſervations I ſhall trouble you with at preſent, and remain,

Sir,

Yours to ſerve you,

Anthony van Leeuwenhock.

III. *A Letter from Mr* Ralph Thoresby, *F. R. S. to Dr.* Hans Sloane, *R. S. Secr. Giving an Account of a Lunar Rain-Bow ſeen in* Darbyſhire, *and of a Storm of Thunder and Lightning which happened near* Leedes *in* Yorkſhire.

Honoured Sir,

THE *Iris Lunaris* being ſo rarely ſeen, that the Ingenious Dr *Plott* tells us (Nat Hiſt. of Oxf. cap. 1. §. 7.) that ſeveral Learned and Obſerving Men never ſaw one in their Lives, and that even *Ariſtotle* himſelf obſerv'd but two in above 50 Years; the enſuing Account, which I had from a Gentleman of great Veracity and Ingenuity, will be the more acceptable. He is now in this Town, but was lately in *Darbyſhire*, where, upon *Chriſtmas* laſt, he was at *Glapwell Hall*; and walking towards *Patterton-Green*, about Eight in the Evening, he obſerv'd with great Satisfaction the Bow, which the Moon had fixed in the Clouds: She had then paſs'd her Full about 24 Hours; the Evening had been